

**WHAT IS CLAIMED IS:**

1. A computer-implemented method for rendering a foreground area of an image, the image including the foreground area and a background, the method comprising:
  - identifying a target area in the image, the target area being an area of the background associated with the foreground area or an area of the foreground area associated with an area of the background, the target area containing a number of pixels, each pixel having one or more attribute values associated with one or more attributes;
  - selecting a set of pixels to sample from the target area, the selected set of pixels including less than the number of pixels in the target area;
  - identifying the attribute value for each of a plurality of the pixels in the selected set;
  - predicting an attribute value for the target area based on the identified attribute value;
 and  
 rendering at least a portion of the foreground area based on the predicted attribute value.
2. The method of claim 1, wherein:  
the one or more attributes include a color attribute.
3. The method of claim 1, wherein:  
identifying the attribute value for each of a plurality of the pixels in the selected set includes determining whether the identified attribute value matches a predetermined attribute value.
4. The method of claim 3, wherein:  
determining whether the attribute value matches a predetermined attribute value includes comparing the attribute value of each of the plurality of pixels to a set of attribute values within a threshold distance from the predetermined attribute value.
5. The method of claim 1, wherein:

2 selecting a set of pixels to sample includes defining a desired confidence level for the  
 3 prediction of an attribute value for the pixels of one or more of the foreground area and the  
 4 background.

1 6. The method of claim 5, wherein:

2 the set of pixels to sample is selected by defining a sample size based on an allowable  
 3 percentage of pixels that do not match the predetermined attribute value and the desired  
 4 confidence level, and selecting a number of pixels from the target area based on the sample  
 5 size.

1 7. The method of claim 6, wherein:

2 the set of pixels is randomly selected from the target area.

1 8. The method of claim 1, wherein:

2 the one or more attributes include a transparency attribute.

1 9. The method of claim 2, wherein:

2 rendering the foreground area includes applying a rendering function based on the  
 3 predicted attribute value.

1 10. The method of claim 9, wherein:

2 applying a rendering function includes selecting a rendering function from a plurality  
 3 of rendering functions based on the predicted attribute value.

1 11. The method of claim 10, wherein:

2 the plurality of rendering functions includes a first rendering function for rendering  
 3 foreground areas associated with background areas having a pre-determined attribute value;  
 4 and

5 rendering the foreground area includes applying the first rendering function if the  
 6 predicted value matches the pre-determined attribute value.

12. The method of claim 11, wherein:

rendering the foreground area includes applying a second rendering function if the predicted value does not match the pre-determined attribute value.

13. A computer-implemented method for rendering a foreground area of an image, the image including the foreground area and an associated background area, the background area including a number of pixels, the method comprising:

selecting a set of pixels to sample from the background area, the selected set of pixels including less than the number of pixels in the background area;

identifying a color of a plurality of pixels in the selected set;

predicting a color of the background area based on the identified color; and

based on the predicted color of the background area, selecting a rendering function from a plurality of rendering functions, the plurality of rendering functions including a first rendering function for rendering foreground areas associated with background areas having a pre-determined background color, and a second rendering function for rendering foreground areas not associated with background areas having the pre-determined background color; and

rendering at least a portion of the foreground area using the selected rendering function.

14. A computer product, tangibly stored on a computer-readable medium, for rendering a foreground area of an image, the image including the foreground area and a background, the product comprising instructions operable to cause a programmable processor to:

identify a target area in the image, the target area being an area of the background associated with the foreground area or an area of the foreground area associated with an area of the background, the target area containing a number of pixels, each pixel having one or more attribute values associated with one or more attributes;

select a set of pixels to sample from the target area, the selected set of pixels including less than the number of pixels in the target area;

identify the attribute value for each of a plurality of the pixels in the selected set;

predict an attribute value for the target area based on the identified attribute value;

and

13                   render at least a portion of the foreground area based on the predicted attribute value.

1       15.     The computer program product of claim 14, wherein:

2                   the one or more attributes include a color attribute.

1       16.     The computer program product of claim 14, wherein the instructions operable to  
2     cause a programmable processor to identify the attribute value include instructions operable  
3     to cause a programmable processor to:

4                   determine whether the identified attribute value matches a predetermined attribute  
5     value.

1       17.     The computer program product of claim 16, wherein the instructions operable to  
2     cause a programmable processor to determine whether the identified attribute value matches  
3     a predetermined attribute value include instructions operable to cause a programmable  
4     processor to:

5                   compare the attribute value of each the plurality of pixels to a set of attribute values  
6     within a threshold distance from the predetermined attribute value.

1       18.     The computer program product of claim 14, wherein the instructions operable to  
2     cause a programmable processor to select a set of pixels include instructions operable to  
3     cause a programmable processor to:

4                   define a desired confidence level for the prediction of an attribute value for the pixels  
5     of one or more of the foreground area and the background.

1       19.     The computer program product of claim 18, wherein:

2                   the set of pixels to sample is selected by defining a sample size based on an allowable  
3     percentage of pixels that do not match the predetermined attribute value and the desired  
4     confidence level, and selecting a number of pixels from the target area based on the sample  
5     size.

1       20.     The computer program product of claim 19, wherein:

the set of pixels is randomly selected from the target area.

21. The computer program product of claim 14, wherein:  
the one or more attributes include a transparency attribute.

22. The computer program product of claim 15, wherein the instructions operable to cause a programmable processor to render the foreground area include instructions operable to cause a programmable processor to:  
apply a rendering function based on the predicted attribute value.

23. The computer program product of claim 22, wherein the instructions operable to cause a programmable processor to apply a rendering function include instructions operable to cause a programmable processor to:  
select a rendering function from a plurality of rendering functions based on the predicted attribute value.

24. The computer program product of claim 23, wherein:  
the plurality of rendering functions includes a first rendering function for rendering foreground areas associated with background areas having a pre-determined attribute value;  
and  
the computer program product further comprises instructions operable to cause a programmable processor to apply the first rendering function if the predicted value matches the pre-determined attribute value.

25. The computer program product of claim 24, wherein the instructions operable to cause a programmable processor to render the foreground area include instructions operable to cause a programmable processor to:  
apply a second rendering function if the predicted value does not match the pre-determined attribute value.

26. A computer product, tangibly stored on a computer-readable medium, for rendering a foreground area of an image, the image including the foreground area and an associated background area, the background area including a number of pixels, the product comprising instructions operable to cause a programmable processor to:

select a set of pixels to sample from the background area, the selected set of pixels including less than the number of pixels in the background area;

identify a color of a plurality of pixels in the selected set;

predict a color of the background area based on the identified color; and

based on the predicted color of the background area, select a rendering function from a plurality of rendering functions, the plurality of rendering functions including a first rendering function for rendering foreground areas associated with background areas having a pre-determined background color, and a second rendering function for rendering foreground areas not associated with background areas having the pre-determined background color; and render at least a portion of the foreground area using the selected rendering function.